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ORIGINAL ESSAYS AND CASES.

ART. I.—*Observations on the Modus Operandi and Effects of Medicines*, by DANIEL DRAKE, M. D.

But few subjects in the profession involve greater difficulties than the Modus Operandi of Medicines. The effects of almost every medicine are various—the mode of its operation complex and obscure. Were the human body a single molecule, homogeneous in structure and function, the laws of its relations with surrounding objects would be few and easily comprehended. But the reverse of this is true, and hence the inevitable failure of all who have sought to embrace, in a few general propositions, the principles which relate to this subject.

It must be granted that some of these propositions are, on the whole, correct; as, for instance, that which pronounces all medicines to be *alterants;* but this merely declares them active substances in relation to our systems; and leaves us ignorant of the variety of alterations which they can produce, and of the modes of that production, although these are the proper objects of inquiry. As the organs which compose the body, have different aptitudes and are variously acted on by the same agent, we shall find that the medicine which *excites* one function, may *disturb* another, *suspend* a third, and leave

a fourth *unaffected*,—and as the organs are associated and co-operative, if one be changed in its actions, others will likewise experience change;—finally, every substance in nature exerting upon us, an action peculiar to itself, the changes, both primary and secondary, which are wrought out by medicinal agents, are exceedingly numerous. I shall proceed to consider, in what way they are brought about.

This inquiry naturally divides itself into two parts:

1. How is it that a medicine applied directly to an organ, changes the mode of its existence.

2. In what manner does this change cause an alteration in the mode of existence of *other* organs.

With respect to the first, we can only say, that the effects of an external agent upon the functions of an organ, provided it acts neither mechanically nor chemically, are referable to the existence, in the organ, of the properties denominated sensibility and contractility, without one or both of which no phenomenon would follow its application. Beyond this, I presume, our analysis of the subject cannot be carried. A knowledge of the *quomodo* is evidently unattainable. We can only observe and register the feelings and symptoms which follow the contact of the medicine. These declare to us, that some medicines *exalt* the sensibility and contractility, others *depress*, and others *pervert* them. The first are called stimulants or excitants, the second sedatives, the third irritants or alterants. But the last may either increase or diminish the vital properties, while they irritate, and hence results a complicated effect. I am aware that some therapeutists deny that external agents ever directly depress the powers and actions, either of the part to which they are applied, or of those remote from it; and sustain their averment, by saying, that every *active* substance must *necessarily* stimulate; that is, produce increased excitement. This, however, is assuming what should be proved. The relation is not between the agent and the excitement; but the agent and that susceptibility without which it would be inert. Now it is just as possible to comprehend that a medicine may

exhaust the susceptibility, as augment or pervert it; and hence we can as easily conceive of the existence of sedatives, as stimulants or irritants.

The second part of the inquiry is far more complicated. When we cast our medicinal agents upon the surface of one organ, we observe changes in the functions of many others, and sometimes of the whole. Now how are these changes effected? I answer that they are brought about in one or more of three modes.

1. By correspondence of function.
2. By dependence of function.
3. By absorption.

1. Correspondence of function is established and maintained by the nervous system. Without this bond of union and intercourse, all the organs would be like distinct animals, placed in junta position, adhering to each other, and dependent for sustenance upon the same fountain; but unacquainted with each others functions, enjoyments or sufferings. There would, in fact, be no unity, nor concert, and of consequence no individuality. It is easy to perceive, in what manner the organs are connected by the nervous system; but how that system enables them to hold communion, and act and react on each other, is one of the arcana of life. Of the fact, however, we are well assured; and with it we may connect many of the distant effects of our medicinal agents. Parts that are associated in health sympathize, when one is excited or tortured by the active substances which constitute our materia medica. A reference to this principle is by many considered a sufficient explanation of all that follows upon the administration of a medicine; and to such its modus operandi appears in an aspect of extreme simplicity. If, however, the effects of a medicine were in reality propagated through the system by sympathy only, I could not allow to that propagation, the simplicity which is claimed for it. When several different organs are disturbed by the application of a medicinal agent to one, it by no means follows, that they all sympathize with *that one*. When disturbance is carried into

a second organ, a third may sympathize with it, instead of the first, while a fourth may be agitated by either or all of the preceding; and thus the aggregate or constitutional effect, become the offspring of a complicated process. But this is not the only error of this comprehensive philosophy. Having shown, what no one will deny, that distant organs *may* be affected sympathetically, they consider it proved, that they are affected in *no other mode*, than which a more obvious error could scarcely be committed. As well might they assert, that because a remote place can be reached over land, we *cannot* travel to it through the water or the air.

The facts which establish the sympathetic operation of medicines, prove *that* and *nothing more*. Another *kind* of evidence is necessary to demonstrate, that effects produced in a different mode, are not blended with these; and *that* testimony is wanting. On the other hand, believing that such effects have a real and most important existence, I shall proceed to consider the manner of their production.

2. Dependence of function, although but seldom referred to in explaining the propagation of impressions, either morbific or curative, is manifestly entitled to great attention, both from the pathologist and the therapeutist. Sound health requires reciprocity of action; and the well being of the whole, can only result from the well being of all the parts. If one of these fail, some other must of course perform its office imperfectly, and when all are in debility and disorder, if one be restored, some other will immediately improve in its condition. Thus morbid and healthy states of existence are disseminated throughout the system, as irregular and regular movements are propagated through a complex machine, by mutilating or mending any of its parts.

To apply this principle to the modus operandi of medicines, it is only necessary to refer to the influence which the great organs of the body, as, for example, the stomach, the heart, the brain, the liver, and the skin, exercise in its economy. If any one of them faulters in its duty, some other—perhaps several—fail in theirs: it being a law of the sys-

tem, that every organ shall perform a certain part, to enable the rest to perform their offices; and if any one of them is changed in its action, the others, under the requirements of the same law are changed in theirs. Thus, if an external application invite blood to the surface of the body or repel it, the organs of the interior experience corresponding abstraction or repletion. If the liver is made to secrete more bile, the bowels are stimulated into increased action. If the powers of the heart are augmented, the various organs are injected with greater momentum, and assume a higher tone. Now the effects, of which these may serve as specimens, are undoubtedly blended, in every case, with those which arise from correspondence of function. Thus while an external stimulus promotes cutaneous circulation, and draws from the plethoric organs within, their superabundant blood, it imparts to the skin an excitement, which, through the medium of the nervous system, revives the oppressed powers of those organs; and while mercury causes a flow of bile, that stimulates the bowels to a livelier peristaltic action, they feel, *sympathetically* and beneficially the higher and healthier function of the liver, which that medicine has produced. Other and more striking examples of the union of correspondence of function and dependence of function, in transmitting the impressions made by curative agents, could be cited, but these are sufficient for illustration.

3. The last mode in which medicines produce an effect in parts remote from that to which we apply them, is by being absorbed into the sanguiferous system, circulated with the blood, and finally eliminated, through the excretory organs. The time has passed away, never to return, when this was regarded as the only mode in which a medicine can make itself felt in parts remote from the place to which it is applied; but that it is *one* of them may be regarded as an established truth. I am apprized that there are a few exclusive sympathists, who "cannot conceive of the absorption of medicines," any more than a humoralist of the Boerhaavian school could conceive of their acting without being absorbed; and I feel the full

force of the *petitio principii*, that the living body will not tolerate the absorption of active substances. But what the living body will or will not tolerate, we can only know from experiment and observation; and by these we learn, that active substances thrown upon the mucous membranes, and, under certain circumstances, upon the skin, are absorbed, do circulate, cause disturbance of the functions, and are finally eliminated through some of the excretory outlets of the sanguiferous system: Outlets in which reside the true vires conservatrices naturæ; and which would be far less necessary, if nothing could pass into the system, that might not remain there. It is not my design to exhibit a catalogue of the substances which, taken into the stomach, have been detected in the blood, or in the secreted fluids of the kidneys, lungs or skin. More than twenty might be enumerated, without referring to writers of a period, when experiments in physiology were conducted less rigidly than at the present time. Indeed, facts of this kind have become so numerous, and are so authentic, that no one can venture to deny them.

It is asserted, however, that none of the curative effects of medicines are attributable to their absorption; but how can this assertion be sustained? When thrown into the blood vessels in our experiments, they produce striking effects, and does this not favor the opinion, that when absorbed, they must be operative?

But it is said, that before they can be absorbed, they must be assimilated; that is decomposed, and their ultimate elements united with those of our food into chyle. Here, again, is assertion without proof or even plausibility. If medicines are decomposed, and their ultimate elements become chyle, how can they ever reappear? If the particles of oxygen, azot and potassum which, united in certain proportions, constitute nitrate of potash, be once separated and made component parts of the chyle and blood, what should induce *them*, more than any other particles of the same kind, to re-unite in the urine and form nitre?

Further. Several medicines, that appear in the excre-

tions after being swallowed, such as camphor, oil of turpentine, and the balsam of copaiva, are vegetable compounds, the products of vegetative action,—and if decomposed into their elements—oxygen, hydrogen, and carbon—can never be regenerated, but by subjecting those elements a second time to the vegetable chemistry that first combined them.

It has been said that medicines can not be detected in the serum of the blood; and are, therefore, not absorbed, or have lost their formal state. What I have just said, would seem to be a sufficient reply to this affirmation, but a few remarks may not be amiss:

1. Several medicines, such as the prussiate of potash and carbonate of soda, *can* be detected in the blood.

2. Many substances mixed with the serum after it has been drawn from the body, can not be detected by our tests, even when the proportion is greater than it can be by absorption.

3. Substances, when absorbed, do not accumulate in the blood vessels; but begin to pass out of the system through the lungs, kidneys, skin, and probably the liver, almost as soon as absorption commences; and hence the quantity existing in the blood at any one time, is always small.

4. For the greater number, as for example, most of the native vegetable compounds, we have no certain tests. Nevertheless, it is held by some that the change which medicines undergo in being absorbed, is not one of absolute decomposition, but only such a change as prevents their entering the blood in a *formal* state. But whether their state be *formal* or *informal*, this may be predicated of them—that they are, or are not, essential components of the blood. If the former, they have been decomposed and assimilated, and of course can never be revived—they have been dissolved into nutriment: if the latter, they are foreign bodies—for every thing contained in the sanguiferous system, that is not blood, is extraneous matter;—and they may therefore be active.

Concerning this state *formal*, and the state *informal*, our information is not so full as could be desired. The sub-

ject is rather an obscure one. When carbonate of soda, after its copious administration, is found to impregnate the serum of the blood and the urine, the elements which compose it—oxygen, carbon and sodium—must exist separately, or united into carbonic acid and soda, or into greater consolidation, so as to constitute the salt in question. It would be interesting to know which of these is the *informal* state, which the vital principle is pleased to tolerate. I should think, on the whole, that this principle would have least difficulty in managing the last. To vulgar observation, the carbonate of soda is less irritating than either of its immediate constituents; and these, again, rather milder than the three simple substances of which they are composed; so that on the whole, until more fully instructed, we may venture to regard the carbonate of soda, as the *informal* state in which carbonate of soda can exist in the blood. In reference to simple bodies, the inquiry is less difficult. When for example, sulphur enters from the mucous membrane of the stomach, and makes its exit through the surface of the body, it certainly has not the form of an octahedron, in which we find it in the earth; and, *therefore*, is not in a formal state; but that the atoms of this elementary substance are the same, whether in the earth or in the blood, we are compelled to believe, as long as we consider it an undecomposable body. The changes, only apparent, that simple substances can undergo, are those of composition, not decomposition: They may be disguised, but can not be destroyed.

We are told, that if we believe in the absorption of one medicine, we should believe that all are thus received; while, with respect to the greater number, there is no evidence of their absorption. We should believe according to the facts. These inform us that some medicinal agents reach the blood, but others may not. Many articles may offend the absorbing vessels, and not be taken up; others may pass out through the liver, and never reach the vena cava; some may pass off in the lungs, and not arrive at the left side of the heart—others, arriving there, may be rapidly eliminated through

kidneys or the skin; while a few, not stimulating any of the emunctories with energy, may continue for some time to circulate in the system; and even be deposited in its tissues as happens with the preparations of silver. On all these points, every external body in nature is peculiar; and a knowledge of its relations with the living system can only be acquired by observation.

But if medicines were absorbed, they could not, it is averred, produce their specific effects. Why? And where is the evidence that they could not? When thrown into the stomach and bowels, we observe certain phenomena to follow, and I know of no proof that a part of them are not owing to absorption. It can not be said that they are solely referable to correspondence and dependence of function, unless it be proved that none of them spring from absorption. If we do not obtain the same results whether we inject medicines into the veins, or place them on a sensible mucous membrane, it proves nothing against the doctrine of absorption. In the first place, when thrown upon a sensible surface, the impression which they make is propagated to distant parts by sympathy and dependence of function, and the effects thus generated are blended with those to which a subsequent absorption gives birth. Secondly: When injected into a vein, they are mixed with a small quantity of blood, which goes, thus highly impregnated, directly to the heart, and throws that, and the other great organs, into a state of irritation which could not result from the introduction into the blood vessels of an equal quantity of foreign matter, by healthy absorption. Indeed, such is the mechanism of that absorption which I suppose to introduce medical agents into the circulation, that it is quite impossible for them to reach the heart in a concentrated state. Thus, if taken up by the veins of the stomach, they are mixed in the trunk and hepatic extremities of the vena portæ, with nearly all the blood of the cœliac and two mesenteric arteries, before they are allowed to reach the heart. And must therefore exert on that organ effects very different from those produced in our

experiments. But we do know from experiment, that many articles may be so injected into the venous system, as to produce effects nearly identical with those which follow their introduction into the stomach. Thus, castor oil will purge, tartrate of antimony vomit, emetin produce coma and congestion of the lungs, nitre increase the flow of urine, and opium occasion sleep, when they are thrown directly into the venous blood.

It is remarkable, that the energy with which these and other medicines act when injected into the veins, has been cited as an evidence that they are not absorbed. Does it not rather prove the reverse? It shows that the system is extremely susceptible to impressions of this kind. If the injection of medicines into the blood produced no effect, it would certainly demonstrate that they never acted in consequence of being absorbed.

Medicines, when absorbed, are either suspended or dissolved, in the serum of the blood; and with it carried through the system. They are thus made to act upon a surface incomparably more extensive than while they remained in contact with the mucous membrane of the stomach; and that this vascular surface is extremely sensible to their impress, we have just seen. All the conditions necessary then to a decided effect, are present, and why should that effect not be produced? It is asked, if they act after being absorbed, what it is, that determines a narcotic upon the brain, a diuretic upon the kidneys, and a chologogue upon the liver? I reply, that we do not know, any more than we know, why it is, that the impression which an agent makes on the stomach, should be transmitted to the brain, kidneys, or liver, instead of the lungs or uterus. And this reply I hope will satisfy every exclusive sympathist.

To conclude this part of the subject, I am compelled to believe, that some medicines are absorbed, do retain, in part at least, their active qualities, are diffused throughout the system, act upon the solids as foreign bodies, and are finally assimilated or discharged with the excretions;—in which

they are discoverable, by our tests, more readily than while in the blood, simply because they are less diluted.

It remains to inquire, whether this mode of operation can be united with the other two which I have acknowledged.

Why can it not? Why should they not co-operate? The stomach was not created as a receptacle for medicines; nor were ipecacuanha and guaiacum secreted for remedies. These and the other articles of the materia medica, are resorted to, because good effects, under certain circumstances, be derived from their administration. Experience has taught us this. But experience has not informed us, that if they affect the stomach, into which, generally, they are first received, they can not, *therefore*, reach other organs of the body, and act on them. On the contrary, both experiment and observation agree in demonstrating, that as long as a medicinal agent remains in contact with *any* part of the living body—the stomach or bowels, the liver, the heart, the brain, the kidneys, or the skin, it continues to act. It is indeed under a physical necessity to be operative; and from this law, taken in connection with the fact, that medicines *are* absorbed, we may deduce *apriori* evidence, that their modus operandi is not simple, but complicated. To establish this proposition is the chief object of my paper. I will proceed to illustrate and confirm it by a few examples.

When emetin is taken into the stomach in fatal doses, it first affects that organ unfavourably, and at length produces coma and death. On examining the dead body, the lungs are found greatly engorged. When injected into the veins, coma and death are equally the consequence, and the lungs are found in the same engorged condition. Now as those viscera of the head and chest, in the latter experiment, are not affected by their association with the stomach; but by the direct action of the injected poison, we should, I think, believe that in the former case it is absorbed and carried to them, after having produced its first impress upon the stomach.

Again, sulphur applied to the surface of the body, cures many of its diseases. Administered internally, it is known to reach the skin, and produce equal effect. But at the same time it removes constipation and betters the condition of the digestive organs, so often impaired in cutaneous diseases. Between these organs and the skin, however, there is an intimate reciprocal sympathy; so that the improved health of the former, is necessarily followed by amendment in the latter. We are thus enabled to understand why sulphur is more beneficial in some cutaneous maladies, if given internally, than applied externally. Its curative operation begins with its impress on the mucous membrane of the stomach, and terminates with its action in the skin, as it makes its exit from the system. Its modus operandi, equally involves sympathy and absorption.

The mode of action and effects of opium are still more complex and diversified. When taken in a large but not deleterious portion, the following are its characteristic effects.

1. The excitement of the system, at large, is exalted;—the contractions of the heart are rendered more frequent and vigorous, and the cerebral functions more animated.

2. Drowsiness presently supervenes, the organs of sense become obtuse, the functions of the brain are reduced in energy, and the action of the heart is rendered slow and deliberate, with a soft and full pulse.

3. Slight diaphoresis, with itching, terminates the series of effects.

Here we have many successive constitutional disturbances, and they afford *prima facie* evidence of a complicated modus operandi. There is, I think, but little to require or sustain the belief, that they all spring immediately from the impress of opium on the mucous membrane of the stomach. That the first are referable, directly and indirectly, to such impress, is extremely probable; but the second, it appears to me, arise from the transmission of the medicine to the heart and brain, and other internal organs; the last from its elimination through the skin.

Thus the medicine acts on the stomach as an excitant, and by *correspondence of function*, propagates its effects to the brain and heart. They being excited, transmit to the organs over which they preside, and reciprocally to each other, an increased quantity of their respective influences, and hence, by *dependence of function*, more exalted vital properties and a higher grade of excitement, manifest themselves in the system generally. At length the medicine is *absorbed*, and enabled to act *directly* upon the brain and heart, when the sensibility and contractility of these, and the other organs, are diminished, and the second class of effects which I have enumerated, ensue. Finally, it is thrown out of the system, through the skin, and some disturbance of feeling and function in that organ, is the consequence of its presence.

Let it not be said that in contending for these different modes of action, I am multiplying causes beyond the requisitions of the case. The effects to be explained are numerous; and, regarded as the product of a single proximate cause, inconsistent with each other. No rule of philosophysing requires us so to consider them. Masses of phenomena should be analysed, until the various causes which produced them, are laid open to our view; when they are to be admitted, whether they be few or many.

I shall close with a few reflections naturally growing out of what has been said.

Why are the constitutional effects of medicines, when applied to the skin, the nares and the rectum, so limited and uncertain, in comparison with their effects when received into the stomach or injected directly into a vein? The skin and scheiderian membrane, are acted on with energy by a great number of articles; and so irritable is the rectum, that substances which the stomach will quietly retain, often produce great irritation, and are speedily rejected from that bowel. Should not this difference be, in part, ascribed to their being absorbed from the stomach, more than from those other surfaces? I think it should.

Several medicines, for example, the bark, digitalis, the

squill, and super tartrate of potash, produce very few of their distant and constitutional effects, when they purge. This is scarcely explicable on the sympathetic theory alone; for they impress and irritate the mucous membrane of the stomach and bowels, when they purge, as well as when they do not; but if purging takes place, we cannot expect absorption to be performed, nor the constitutional effects, as far as they depend on the introduction of these medicines, or their active constituents, into the blood, to ensue.

It is not uncommon, after a few experiments with a new medicine, to decide that it belongs to the class of stimulants, sedatives, narcotics, diuretics, or some of the other arbitrary divisions of the Materia Medica; and by this reference, all further examination is in general foreclosed. We have ascertained that it is an errhine or a vermifuge, and that is enough. This proceeding goes really if not avowedly, on the idea, that the medicine which produces *one* striking effect, produces no other; or that articles which agree in the main point, agree equally in their subordinate effects; both of which are errors that a physician cannot adopt without danger to his patient.

Finally, much has been written on the subject of stimulants and sedatives. The great effort has been, to prove that the latter have no existence; but those who have undertaken the task have too often overlooked the multiplicity of properties which belong to a single medicine. They have been captivated by an imaginary simplicity. Inverting the rules of philosophical logic, they have drawn analogies from the minor to establish the major. Observing that tartarized antimony, digitalis, nitre, and the vegetable acids, irritate the parts to which they are applied, the conclusion has been immediately drawn, that in their general operation, these medicines are stimulants. But an unbiassed attention to that operation, will convince us, that the topical is no index to the constitutional impression. That whatever may be said of the former, the latter is unquestionably sedative; and hence that we may employ those medicines to lower the powers and ac-

tions of the general system, with as much confidence as if their local impression were the reverse of what it is.

With these remarks, I close this desultory essay. I do not pretend that it contains any new ideas. My chief object has been, to recognise and sustain certain principles which I believe to be correct, though not universally adopted; and this, I hope, has been in some degree accomplished.

Cincinnati, August, 1827.

SELECTED ESSAYS AND CASES.

ART. II.—*Observations on the Hirudo Medicinalis and the mode of Raising them.* By R. DIETZ, Member of the Academy of Natural Science of Philadelphia.

[From the Phil. Jour. of Med. and Phys. Sciences, No. 28.]

Whilst on a visit to Toulon, some months since, I was shown at the hospital of that city, a reservoir in which leeches are raised and kept for medical purposes, and I was informed that not only a sufficient number were there raised for the supply of the hospital, but that many were annually sold.

As leeches constitute one of the most important therapeutic agents of the physician, and as with the exception of this city, they are not extensively used in the United States, probably from the supposed difficulty of raising and keeping them, the following observations on their mode of propagation, and the means of preserving them, will not, perhaps, be wholly uninteresting and unimportant.

Many naturalists, among others, LINNÆUS, believe the Hirudo medicinalis to be viviparous; some asserted that the young might be seen perfectly formed in the body of their parent; others, however, as BERGMANN, &c. considered them as oviparous. The authority of Linnæus was so great in every department of natural history, that it is not surprising that his opinion should have long been generally received, almost without investigation, or a suspicion of its accuracy. It has indeed been observed, that certain ovoid bodies, called by the French, "cocoons," from their resemblance in shape to those of the silk worm, were often found in leech ponds, but they were generally considered to be formed by some unknown insect, and as they were found exclusively in places where leeches were kept, they were supposed to derive their sustenance from, and of course to be detrimental to those animals, and the ponds were therefore occasionally examined, and the cocoons removed and destroyed.

Mr. Noble, principal physician to the "Hospice de Versailles," appears to have been the first to notice particularly these cocoons, and to suspect their true nature. Mr. Achard, king's apothecary at Martinique, W. I. followed up the suggestions of the former, and published the result of his experiments in a pamphlet which procured for its author the French order of "la croix de l'honneur."

Mr. Achard states, that immediately after reading the article by Mr. Noble in the Journal Universel des Sciences Medicales for April, 1823, he went in search of some of the cocoons, and found three of them in the clay, which he put into a tumbler half filled with water; after a few minutes they sunk down. At the end of twenty-five days, he observed an elongation at the extremity of one of the cocoons, and two days after, he saw a filament coming out from the elongated extremity, which appeared to have motion. He took the cocoon out of the water, and having carefully opened it, he found in it three young leeches of a flesh colour, transparent, having at most the length of three centimeters and of a proportional thickness. The matter adherent to the interior walls of the envelope, was like gelatine, and it also contained a liquid of a syrupy consistence and of an ammoniacal odour. The three leeches were put into the water, where they displayed their usual motions. He also opened the remaining cocoons, which had not shown any indications of developement, but found their contents to be merely a gelatinous substance and a sanguineous fluid.

It having been established that leeches are produced in these cocoons, it became an interesting subject for inquiry, to ascertain whether the latter, in size so disproportionate to the animal that produced them, with a conformation so new in the economy of nature, were generated within the animal, or constructed by it externally. After attentive examination, the leech was *seen* to discharge a soft ovoid body, of the size of a single small ground nut, enveloped in a delicate pellicle having the appearance and colour of muscular tissue. This body, soon after it is discharged, is found to be completely covered over with a snow-white slime, supposed to be derived from, and deposited by, the parent, but rather, I suspect, secreted from the capsule of the ovoid body itself. This slimy covering, when dried, as-

sumes the appearance, consistency and colour of fine sponge; when not completely dry, it presents, on examination with a microscope, a texture of hexagonal forms, more or less regularly interlaced with each other. Within the capsule so providently covered, is contained the germ of the animal, which is thus carefully protected from danger.

The cocoons are usually about seven lines in their longest, and four lines in their shortest diameter, but they differ in size. The number of young contained in each cocoon has not been ascertained with certainty, and perhaps the number varies.—Nine or ten have been seen to issue from the same cocoon, and according to the statements of some observers, as many as fifteen.

Observers differ as to the precise time required for the developement of the animal. Mr. Achard, from repeated observations, says, that he saw them come out of their cocoon at the end of from twenty to twenty-five days; while others assert that this does not happen until the end of three or four months. All may, however, be in the right, as the period may be perhaps influenced by temperature. Mr. Achard made his observations in the warm climate of the West Indies, where their developement may be effected in a shorter time, than in the moderate or cold climates of Europe, where other observers made their experiments.

When developed, the young perforate the extremities of the cocoons, which is of a slighter construction, than the remaining portion, and thus disengage themselves.

Various methods have been attempted to ascertain more minutely the process of generation in these animals; but hitherto without success. They have been put into large tumblers of water provided with a sufficient quantity of clay; but as if nature would keep us in ignorance of all that relates to their reproduction, in a few days they darken the sides of the vessel so completely as to render it impossible to observe them.

Some time before the cocoons above described were known to be the eggs of leeches, Mr. Achard observed that these animals prefer living in moist clay rather than in water, though at certain times they sally from their habitations in the former, and make excursions in the latter element.

The knowledge of these facts, and the circumstance of these animals not propagating when kept in water alone, induced Mr. Achard, soon after his discovery that the cocoons were the ova of leeches, to attempt to raise these animals by keeping them in moist clay, or in vessels of water lined with clay. This experiment was crowned with complete success, and it has been fully proved that the animals find their sustenance, enjoy perfect health, and deposit their ova in the clay, and that the latter there become developed, and the young speedily attain a sufficient size for medicinal purposes. The method of raising leeches is exceedingly simple, and attended with little or no trouble.

At Martinique they are kept in tubs of different sizes, coated on the interior with clay supported by wooden trellis work. Some of these tubs contain water, which is seldom changed, in others, the clay is merely kept moist. At Toulon, they have a reservoir eight or ten feet long, and about five wide, at each end of which is a layer of clay, of about eighteen inches. We are informed by several gentlemen, that Mr. KUNITZ of this city, was in the habit seven or eight years since, of raising leeches for medicinal purposes, and that, at that period he exhibited to them the cocoons as the ova of the animal. Mr. RIPPERGER, of this city, says that twenty-seven years ago he showed these cocoons to the late Dr. MONGES, as the eggs of leeches. Mr. Kunetz kept his leeches in vessels with moss: we believe, however, that clay is preferable.

By adopting the simple contrivance we have described, leeches may be raised in great numbers, and every physician may thus have at his command, these valuable therapeutic agents. All that is required is to obtain a vessel of sufficient size, line it with clay, place water in it, and colonize it with a few leeches: no subsequent trouble need be taken, except to change, occasionally, the water. In no part of the United States south of this city, will these animals suffer from the climate; to the north, it will be necessary, during the winter, to protect them from the extreme cold, by placing them in a cellar or some sheltered situation. These animals, however, support considerable extremes of heat and cold. Mr. J. L. DERHEIM, in his "Histoire Naturelle et Medicale des Sangsues," states that from experiments made for that purpose, he found that leeches can not sup-

port a temperature above 113° F. though the small ones will bear heat for a longer time than the larger: on the contrary, the latter resist cold better than the former; the small leeches being destroyed by a temperature of 20° or 23°, while the large will support it until it falls below 15° or 22°, above 0.

At Toulon I was shown leeches of four years old, which had attained their full size.

ART. III.—*Report of Experiments recently performed at the Jefferson Medical Hall, relative to Venous Absorption from the Cavity of the Stomach.*

[From the Phil. Monthly Journal of Med. and Surg. No. 2.]

DR. C. LUZENBURG, assistant in the department of Practical Anatomy, had been engaged in performing experiments, at the suggestion of Professor Rhees, for the purpose of determining the influence of the nerves on the function of absorption generally.

For this purpose, both extremities of the stomach were included in ligatures, together with the nerves which the organ receives from the eighth pair, and from the solar plexus. The prussiate of potash was, under these circumstances, abundantly absorbed and detected in various parts of the system.

I then suggested to Dr. L. the following experiments, for the purpose of determining the comparative importance of the veins and the lymphatics, in regard to the functions of absorption from the cavity of the stomach.

The animals employed were cats. The abdomen was opened, and the pyloric and cordiac extremities of the stomach were included in ligatures and divided. The peritoneum was then dissected away from around the coronary artery of the organ, and also from around the principal vein. All the peritoneal attachments were then removed, so that the organ retained no other connexion with the system than through the medium of one artery and one vein. By these the circulation was observed still to be kept up. Such vessels as bled on being divided were secured by ligatures.

The prussiate of potash, in solution, was then, by a tube carefully conveyed into the stomach, so as to suffer none to fall into the cavity of the abdomen. The incision was finally closed by sutures, and the animal was suffered to live two and a half hours. On its being killed at the end of this time, the following interesting phenomena were manifested:—

On applying the tincture of the muriate of iron to the blood of the vena portæ, it immediately assumed a strong blue colour. On applying it to slices of the liver, remarkable blue patches were instantly obvious. The same occurred when it was applied to the heart. It was most striking, however, in the interior of the kidnies. When these organs were divided, and their surfaces touched with the tincture, they instantly became intensely blue, as if covered with a thick pigment. When the external surface of the stomach was dashed with the tincture, it exhibited very little of the blue tint, a decided proof that the solution of the prussiate had not transuded through the stomach.

The above experiment was four times repeated. Three times it was done by Dr. Luzenburg, and once by Mr. Mailliard, and always with the same remarkable results.

With a view to determine the comparative activity of the lymphatic absorbents, I then requested the above gentlemen to perform the following:—

The principal arteries first, and then the principal veins going to the stomach, were secured by ligatures, so that the sanguineous circulation was feebly carried on by the small vessels remaining. The prussiate was then introduced as before, and the animal having been suffered to live the same length of time, was killed. The most careful application of the test, however, could no where detect the prussiate, except in the strangulated veins of the stomach, where it was found in obvious quantity, they being much distended with blood. This experiment was repeated by both Dr. Luzenburg and Mr. Mailliard, and with results perfectly uniform.

It might be objected to the last experiment, that the tying of all the principal blood-vessels of an organ should so impair its organic functions that no absorption could be expected to take place; but this objection is at once obviated by the fact, that the substance had entered the veins and passed as far as the liga-

tures; certainly, then, this function should not have been interrupted in the lymphatics, had it existed in them before the experiment.

The first series of experiments is similar to those performed by Majendie, Gmelin and Tiediemann, and analogous to some performed in this city by Messrs. Lawrence and Coates. They are interesting, however, as confirming, in the most satisfactory manner, their results, which by some are still doubted as being conclusive. The second is, I believe, unique, and in my mind, renders it quite certain that, whatever may be the office of the lymphatics in the textures of the organ, absorption from the cavity of the stomach is exclusively effected by the veins, and that it is very *copiously* effected by them. Probably the same is true with regard to the intestinal canal.

The experiments were witnessed by several of my pupils, and will, I am confident, be amply confirmed by all who are disposed to repeat them.

The inferences which are to be drawn from these facts, are certainly not a little interesting, in relation to the function of digestion. If substances foreign to the animal tissues, and which cannot be assimilated, are thus abundantly taken up and conveyed into the circulation, is it not absolutely certain that all soluble or fluid alimentary substances are absorbed with even greater avidity? A very large proportion of our aliment, perhaps a moiety, is either fluid or soluble in water, and when taken into the stomach, needs not to be acted upon by the gastric juice, or any other agent, to qualify it for venous absorption.

We very well know that the fluid parts of meat are highly charged with sapid and nutrient principles. These are expressed by mastication in great quantity; and if the prussiate of potash be absorbed by the veins of the stomach, certainly we may be assured that they are drunk up by the same organs. This is the more credible, when we recollect that the sensation of renewed vigour and strength is felt almost immediately after taking food. Sugar is another substance highly nutrient, and completely soluble in water. It is capable of sustaining life for a very considerable time, uncombined with any other article. The fattening of the southern negroes on the saccharine juices of the cane stalks is well known. I think it must be admitted, that at least a very

considerable portion of this substance is absorbed by the veins of the stomach.

The same may be said of mucilages, extractive matters, and perhaps oils. It will be recollected that Haller detected the latter in the blood of the venâ portæ.

The aliment of some herbivorous animals consists entirely of extractive and mucilaginous matters, obtained by maceration from the vegetable substances on which they feed. Hay, upon which horses and kine will even fatten, very readily yields all its sapid and nutrient parts to water. Farmers very well know that if their hay be drenched by repeated showers, after it is cut, it is scarcely worth the making. When hay has been very scarce I have been informed that, for the sake of œconomy, hay tea is sometimes prepared for cattle, in which is dissolved every thing nutrient which the plants contain, and of course there is no waste. On this cattle will fatten, if they are furnished with cut straw for producing the usual distension of the stomach, and which yields no nutriment.

Now, is it to be supposed that this decoction of hay is acted upon by a gastric juice, converted into chyle, and then absorbed by the lacteals? Indeed we are assured by direct experiment that these substances are taken up in great quantity by the intestinal veins of these animals. M. Flandrin ascertained that, in the horse, the venous blood of the small intestines possesses a strong herbaceous taste, if obtained from the animal soon after it has taken food.

How such fluids, absorbed by the veins of the stomach, may become assimilated it is easy to conceive. Not a particle of blood from the stomach nor the intestines enters the general circulation till it has permeated the liver, the most important gland in the animal œconomy. Here not only are the nutrient matters assimilated, but the crude and saline substances which reach the gland from the stomach, in the first stage of digestion, probably furnish the materials of the bile, which fluid being then abundantly secreted, is conveyed to the duodenum, there to meet the residue of digestion, and to exert an important influence in the preparation of the solid aliments, as well as in stimulating the intestinal canal.

We may infer, from the above, that some of the constituent

principles of the bile are furnished by fluids which have never entered the general circulation, but are the feculent parts of such substances as are absorbed by the veins. We have thus another reason, also, why bile is more copiously elaborated, from the time that digestion commences. It also enables us to explain the variable nature of that fluid, and also the fact, that its constituents cannot all be detected in the circulating blood. Thus, too, we confer upon the liver an office so long denied to it, corresponding to its magnitude, complexness of structure, and pathological importance; for, if our inferences are correct, it is one of the most important of the assimilating organs, since the elaboration of bile, from the fluids absorbed, is especially subservient to their animalization.

It will be recollected by those into whose hands an Essay on Digestion, published by me a short time since, may have fallen, that, in it, and in the supplement which followed it, I advocated the following principles in regard to that function:—

1st. That, of the substances taken into the stomach, some, and especially the fluid aliments, are taken up by the veins and conveyed to the liver, where they are further assimilated previously to being added to the circulating blood.

2d. The solid aliments which remain are slowly macerated and dissolved in the stomach, not by a chemical agency, since the constitution of the secreted fluids of that organ does not warrant the supposition, and because, also, the solution is not effected when the nerves of the stomach are divided, nor when these fluids are removed from the stomach. It is accomplished probably by a vital influence, conferred upon its fluids by the nerves of the stomach.

3d. The solid aliments thus rendered semi-fluid on reaching the duodenum, and having been acted upon by the hepatic and pancreatic secretions, are absorbed by the lacteals, not becoming chyle, however, till they have entered these small vessels. Thus, the constituents of the blood, as furnished by digestion, are immediately derived from two sources, a circumstance by no means inconsistent with the compound nature of that fluid. N. R. S.

ORIGINAL REVIEW.

Art. V.—*Traite des Nerfs et de leurs Maladies.* Par M. Tissot. A Paris, 1778. Tome III. part i. sect. 129. art. 20. De L'Epilepsie Idiopathique.

We have placed the following article under the head of Reviews; but it is, in fact, a mere translation of a part of Dr. Tissot's learned and valuable treatise on Nervous Diseases; a work which, as far as we know, has not been published in our language. The subject of the article is the use of the TREPAN in certain cases of epilepsy; concerning which but little is to be found in the works with which the physicians of the United States are familiar.

"Another class of epilepsies have their seat in the head. They may be divided into three kinds, according as the local affection exists: 1, in the cranium—2, in the membranes of the brain—and 3, in the substance of the brain. I have related cases of these different kinds, and we have seen, that if the local disease sometimes manifests itself externally, more frequently it does not; and that we often have much difficulty in discovering the affected spot. In all cases which present an external morbid state, that we can with probability regard as the cause of the convulsions, we need not hesitate to dissect up the integuments and operate upon the bone, in every way that may be necessary. If the bone, only, is diseased, we are almost sure of success; but if the internal parts are diseased, there is much less ground for hope. In a case related by M. Clossy, the bone itself was spongy and impregnated with pus; while the interior of the dura matter was studded with small abscesses. The patient of course died in a few days after the operation. It may happen, however, that a disease in the membranes might correspond with the opening made in the bone; or that an effusion from an internal cause might be discharged through the aperture, and the patient cured. In such cases, the application of the trepan would be always useful; and as it is an operation attended with but little danger, when performed in a proper manner, by a good surgeon, upon a subject who has not a depraved habit of body, we should resort to it in every case (even if there be no obvious disease of the cranium) in which, an attentive observance of the symptoms may justify the opinion that the local disease is in such part of the brain or its

membranes, as may be reached by the operation. Many facts might be cited to sustain this practical precept.

"That we can sometimes decide on the affected part by the symptoms, we know from a case reported by Zecchius, in which an epileptic, for a long time suffered a severe pain in the superior part of the os occipitis; and after death the inner table of that bone was found carious. Other cases might be cited. Sometimes it has happened that the application of the trepan to the heads of epileptics, with the view of relieving them from the effects of an accident, has removed the epilepsy. Thus Spigelius informs us, that he knew a youth, nineteen years of age, greatly afflicted with epilepsy, in whom the disease ceased to return, after he had been trepanned for a fall. And Marcel Donnat tells us of a young Frenchman, who being subject to epilepsy, and on his way to Italy to consult the most celebrated physicians, was attacked by assassins, and among other wounds, received one on the os frontis which carried away a great part of that bone: the wound was a long time open, but at last it healed, and the patient was at the same time cured of his epilepsy. It might be said, perhaps, that in the former of these cases, the concussion occasioned by the fall contributed more to the cure than the trepanning; but the same objection can not be made to the following case, in which a decided mitigation followed the use of the trepan. It is related by La Motte, an author of truth and accuracy. I will give it in his own words:—'In the month of October, 1705,' says he, 'a person afflicted with violent epileptic fits, which recurred with great frequency, consulted me as to what he should do; being still resolved to try whatever should be advised, notwithstanding he had taken every thing which had been prescribed for him, by different physicians, without the least benefit. I inquired whether the paroxysm was not preceded by a pain, or a particular sensation, in some part of his body, which warned him of its access. He answered that he only experienced, in his head, a kind of dizziness, which was so great that he instantly fell down insensible. After the most attentive examination, I could propose nothing to him but the application of the trepan, to which he did not make the least objection. I prepared him for the operation by blood-letting, cathartics and enemata. When the day appointed for the operation arrived, I made a crucial incision, on the centre of the left parietal bone; and removed a portion of the skull. It was of surprising thickness, had no diploe, exhibited nearly the same appearance throughout, and was much harder than common. During all the time that the cranium was open, the patient, who, before, never passed eight days without a paroxysm of the disease, had not a single attack; nor did he even feel the vertigo which had preceded them. When the aperture was filled up, however, the fits returned; but they were much less frequent than before, and always preceded by such protracted warning, as afforded him time to retire to a suitable situation in which to pass through the paroxysm.'

"This case is very important in two respects. 1. It proves that the brain may be so compressed by the cranium, as, at certain times, to produce epilepsy. 2. That the slight diminution of this compression, afforded by the trepanning, was sufficient to produce an abatement in the frequency and the suddenness of the fits. It is extremely probable, that two or three operations would have cured the disease.

"The effect of repeated trepanning upon the *Compte Philippe de Nassau Weichem*, confirms this opinion. He fell from his horse, and the symptoms which followed, evidently demonstrated an effusion somewhere within the cranium; while nothing indicated the particular place,—which was not found till the *twenty-seventh* operation. The patient, perfectly cured, lived many years, without any lession of his faculties; and could even drink a great deal more wine, without intoxication, than before the accident. This case, attested by a certificate of the patient himself, dated August, 1664, is remarkable for the number of trepanings; and important to my subject from the effects which resulted. We have seen, in a former part of this work, that in epilepsy, every thing which determines a great quantity of blood upon the brain may bring on the fits; and wine produces such determination in an extraordinary degree. Repeated trepaning prevented in the Count this effect, and the intoxication with which it is associated; and I cannot doubt, that had he been subject to epilepsy, the causes which, before the operation, might have reproduced the paroxysms, would, afterwards, have been comparatively harmless. I am convinced that many attacks of epilepsy have no other cause than this compression of the brain by the cranium, and whenever we suppose it to exist, (which is probably the case, whenever the fits are constantly reproduced by what determines the blood excessively upon the head,) we would act wisely to resort to the trepan—if the disease is violent, has resisted other remedies, and the patient is willing to submit to the operation. I do not doubt but that we might almost invariably confer benefit on our epileptic patients, by this operation. Areteus long ago recommended it; but his advice was neglected, and remained unknown to the profession, at large, like many other valuable modes of practice in different diseases, which several modern physicians have done themselves credit by reviving and rendering fashionable.

"When the local organic disease is seated within the cranium, and the membranes become ossified, are the seat of an abscess or of hydatids,—or when the cerebral substance itself is softened, scirrhous, cartilaginous or fleshy, which we have seen may sometimes happen, the epilepsy is absolutely incurable; and nothing can be done but to prevent, by regimen, and the most simple means, the frequency and violence of the fits. Perhaps each of the causes which I have enumerated produces some peculiar symptoms; and I would hope that such cases will occur too seldom, to admit of our acquiring a knowledge of their characteristicks. But without this knowledge, there are many symptoms which may enable an observing physician to decide, that there is a permanent lession of the brain;

and in this case, as in all others which are incurable, we should refrain from *curative* efforts. In attempting to cure that which is irremediable, we too often convert a supportable into a terrible malady. In all such cases, the best physician is he, who determines to do nothing but obviate the causes which may aggravate the disease."

EDITORIAL REMARKS.

1. The thickening of the skull, referred to by Dr. Tissot, is probably analogous to simple hypertrophy of the heart; in which the parieties of the ventricle thicken at the expense of the cavity, the volume of the organ remaining the same. In the cranial hypertrophy, the deposition of osseous matter being made into the inner table of the skull, must necessarily diminish its capacity, and produce general, though slight, compression of the brain.

2. Dissections after death from epilepsy, have demonstrated, that a great number of cases arise from, and are sustained throughout their fatal course by, organic affections of the brain and spinal cord, or of the bones of the cranium. An injury, by external violence, may, obviously, excite a train of low and chronic morbid actions, in the bones of the head, or in the brain or its membranes, which may eventuate in structural derangement—and the production of incurable epilepsy; and to produce this convulsive affection, it is by no means necessary, that the organic lession should be extensive. Children are known to be peculiarly liable to this malady, and they are, also, peculiarly subject to injuries of the head; many of which, from the frequency of their occurrence, are suffered to pass without attracting a proper degree of attention. It is not improbable, that numerous epilepsies of children have their origin in these accidents; a fact of which parents, as well as physicians, should be apprised.

3. Cerebral affections will scarcely fail to carry disorder into some of the functions of organic life,—especially the chylopoietic; and we can hardly doubt, but that many cases of epilepsy have been supposed to originate in that disturbance of the digestive functions, which they had in reality occa-

sioned. The poor patients have accordingly been tortured with aperients, chologogues and alterants, directed upon the effects, rather than the causes of their maladies.

4. Concerning the various remedies for epilepsy, we have the most opposite reports by physicians equally entitled to credit; and we are often confounded by the fact, that in two apparently similar cases, of a disease so uniform and specific in its visible phenomena, as epilepsy, the same plan of treatment succeeds in one, and proves either useless or injurious in another. The enigma can not, perhaps be solved, but by supposing the former cases to be unconnected with organic disease, while the latter are excited by that condition.

5. Mania, apoplexy, and paralysis, as well as epilepsy, have been frequently observed to be connected with organic affections of the brain. A classification of these lessions is desirable, that we might know whether *any one* of them can give rise to *any one* or all of these disorders of the nervous system. As every part of our highly complicated cerebral structure has its proper office, and bears a specific relation to the other parts, or to the distant organs of the body, we may suppose, that the same secondary disorders must at all times follow the same kind of lesion in the same cerebral part. On this subject there are some instructive facts, but many are still wanting. D.

SELECTED REVIEW.

ART. VI.—*A case of Melanosis, with general observations on the pathology of this interesting disease.* By THOMAS FAWDINGTON, Member of the Royal College of Surgeons, London, and one of the surgeons to the Manchester Lying-in Hospital; illustrated by coloured lithographic plates. London, 1826, pp. 49.

[From the Am. Med. Rec. No. 39.]

This little production evinces an accuracy of description highly creditable to its author; conveying correct ideas of the general character of melanosis, and of the extent and variety of structure over which it may be diffused. It may be considered a valuable addition to the history of this obscure and comparatively rare disease, which justly deserves the patient investigation of every pathologist.

The disease is reported to have occurred in a robust healthy man, ætat. thirty, employed as a carder of cotton. In January, 1824, he consulted Mr. Wilson, sen. surgeon to the Manchester Eye Institution, on account of a violent and incessant pain in his left eye. Six months previously he had it injured by the projection of a small piece of iron, but the injury appeared to be slight, as there was little pain and no external wound. About a fortnight afterwards, there was a sensation of fulness in the globe, and upon closing his right eye, he found his sight in the left to be impaired. The vessels of the conjunctiva were enlarged, tortuous, and fasiculated; the sclerotica inflamed and undergoing absorption. The iris was dilated and immoveable, and a slate coloured opacity occupied the centre of the pupil. By active depletion, the pain was removed, but no improvement in vision occurred, and at the end of a month he returned into Staffordshire. Near the end of March, the pain again returned and was so excessive as to destroy sleep and induce him once more to apply to Mr. Wilson. The sclerotic coat was much al-

tenuated. The opacity of the pupil had assumed a dirty red colour, resembling newly organized lymph, and seemed like the apex of a conical body, projecting from the bottom of the eye. The former treatment with moderate ptyalism failed, and on the 19th of April, Mr. W. extirpated the contents of the orbit. A section of the eye-ball discovered a black pulpy mass occupying more than half the globe, in the situation of the vitreous humour, no trace of which could be found. Two cells filled with a brownish red fluid were discovered, one at the side of the tumour, the other before it and behind the lens. The tunica choroides was entire and could be easily separated from the adjacent tunic except at one point, but the sclerotica was much attenuated, and as if divided. By the interposition of the tumour the retina was detached from the choroid, and laid folded across the globe, separating the morbid mass from the larger of the two cavities. The lens was opaque and yellow, its capsule thickened, but partially translucent, the ligamentum ciliare was distinct, and a portion of the processes left; the optic nerve, where it had been divided, appeared sound. He soon recovered from the effects of the operation, and returned home. In August, he again applied to Mr. Wilson, on account of three or four tumours on the face, resembling leaden shot, perfectly black, but free from pain or uneasiness. There was difficult breathing, stitches in the side, and a short cough; his pulse was quick and sharp, attended with emaciation. A tumour like those on his face was observed between the scapulæ, and in a few days several were found on the scalp. He was freely bled and sent to the Manchester Infirmary, where he continued about a fortnight, and by his own request became an out-patient.

His strength having declined rapidly, on the 2d October the case came under the notice of Mr. Fawdington. His general aspect was pallid and emaciated, with œdema of the legs. The abdomen was exceedingly protuberant, and the swelling extended from the right to the left side, downwards to within an inch and a half of the pubes. The tumour was irregular, tuberculated and firm, the prominences slightly elastic. Pressure caused slight uneasiness, yet he complained of transient pains in the chest and belly. A few weeks before, he felt a sharp pain in the left hypochondrium, shooting up to the shoulder, which however spontaneously subsided.

His chief distress appeared to arise from the distention and mechanical influence of the tumour, his respiration was slightly interrupted but was much freer, when leaning forward than in the erect or recumbent posture. The cough was trifling and he expectorated mucus. The appetite was for the most part unimpaired and although harassed by a diarrhœa, the evacuations manifested no deficiency of bile. The urine was scanty, and when voided, had a uniform modena red or purple colour, but soon separated into a chocolate-coloured precipitate, leaving a deep amber coloured fluid above. Neither heat nor nitric acid acted upon it. The pulse was somewhat hurried, tongue morbidly clear and some thirst.

The face and scalp had several well formed melanose tubercles, and one, on the lower lid of the extirpated eye, was about ulcerating, with an entire absence of melanose deposition in the bottom of the orbit. The cutaneous texture in other parts escaped, but the subcutaneous tissue, over the chest and abdomen was evidently loaded with the melanose deposition, giving rise, when they became superficial, to faint blue elevations of various size and distinctness.

The treatment pursued in the case, was purely palliative, the diarrhœa was restrained by appropriate remedies, yet the constitutional irritation became excessive, and regular hectic was established; the pulse was constantly above 100 and attended with colliquative sweats; the cough became more distressing, and there was difficulty of breathing in the recumbent posture. This state of things continued till the night of 2d November, when the patient suddenly started from his bed, with a sense of suffocation. After gasping with violent effort, he perspired profusely, and fell into a state approaching to syncope. The surface became cold, great uneasiness, with jactitation and delirium ensued, which speedily terminated in death.

Dissection made manifest the general prevalence and extension of this deposit. The cellular and adipose textures of the chest and abdomen were beautifully granulated with melanose matter, variously disposed in masses and enclosed in transparent cysts. After removing several quarts of bloody serum, and some coagula, the liver was exposed to view, which was altered in shape, and augmented to at least four times its usual

size. One portion of its surface was undulated, another extremely irregular, from a number of dark blue circumscribed elevations, the largest of which would measure four or five inches over the summit. The intermediate portions were of a reddish brown colour speckled with black. Its substance was remarkably tender and lacerable, and on that surface, corresponding to the seat of Mr. F.'s observations during life, was found a large tumour projecting above the rest. On dividing one of the principal tubera, several ounces of a homogeneous dark coloured matter escaped, resembling deep chocolate paint. In general their contents were more fluid towards the centre. The gall bladder, though buried in morbid structure, contained apparently healthy bile, and its coats were free from morbid deposition. The outward portion of peritoneum, was interspersed with minute dots, elsewhere it was comparatively free from melanosis, though the subjacent cellular tissues were universally pervaded. It should be observed that the black matter chiefly in granular and ovoid forms was abundantly distributed along the spinal column, concave surface of the diaphragm, in the adipose substance enveloping the kidneys and their vessels, between the folds of mesentery and mesocolon and also in the omentum. The pancreas, spleen and kidneys, were thickly studded with melanose tumours, and also below the serous tunic of the stomach and intestines. No traces of the disease could be discovered in the nerves or large blood vessels. In the chest a considerable quantity of melanose tubercles was found in the cellular texture of the anterior mediastinum, and chiefly on the outer surface of the pleura costalis, and in that of the pleura pulmonalis, where shey appeared in the form of flattened spheroids, or ovoids, included in a delicate transparent cyst, and attached by a slender pedicle to the subjacent membrane, in clusters, or distinct and insulated. The substance of the lungs was crepitous, and was occupied with a thinly scattered deposition. The lungs were free from morbid adhesions and extravasations. The trachea and its branches were in a healthy condition. Nearly the entire surface of the heart was melanosed, some of it being deposited in its investing membrane, while some was interposed between its fibres. The lining membrane of the auri-

cles and ventricles was sound. Unfortunately an examination of the brain was not permitted.

Mr. Fawdington has supplied us with pretty copious observations on the product of melanosis, which he describes as very similar to the contents of a decayed lycoperdon, or common puff-ball, when moistened with a small quantity of fluid. Its colour was a deep red-brown, or chocolate, slightly fibrous in texture; in its most compact form, it was as tenacious as brain, and when agitated in water or spirit, the former was tinged deeply, the latter slightly, and a pulverulent precipitate formed: No trace of vascularity presented in the cysts; and M. Breschet, with a view to determine the organization of the melanose tubercle, injected the contiguous vessels, but found no vascular continuity or any organization in the tubercle.

M. Barruel, from analysis, is induced to consider this product as a deposition of the colouring matter of the blood and fibrine, under a certain modification so as to form three different fatty substances. The first, soluble in alcohol at a moderate temperature, and disposed to crystallize in brilliant scales; the second is soluble in alcohol at a boiling heat only; the third is a fatty substance in a fluid state at the ordinary temperature of the air; of a reddish colour, containing a large portion of the phosphates of lime and iron. Dr. Henry obtained the following results from a portion of softened matter after having been some time in spirit.

"1st. By filtering through paper, much of the colouring matter remained on the paper, and the colour of what passed through was much less intense.

"2d. Boiling does not destroy the colour, nor even when a little caustic potash has been added.

"3d. It is not changed by acids even when heated, except by nitric acid, which deprives it of its black colour, and turns it yellow.

"4th. A stream of chlorine passed through the liquid, destroys the black colour, and throws down light fawn-coloured flocculi.

"5th. A few grains of corrosive sublimate stirred up with the fluid, precipitates the whole of the colouring matter, and leaves the supernatent liquid quite clear.

"6th and 7th. Nitrate of mercury, and muriate of tin, produce the same effect but more slowly.

"From these experiments it appears that the black matter is a peculiar secretion, analogous in some properties, especially in the 5th, 6th, and 7th, to the colouring matter of the blood. It would be necessary, however, to repeat and extend the experiments on a larger quantity of the fluid and in a more recent state, before any just conclusion can be deduced respecting its nature.

One peculiarity attending the melanose deposition is deserving of particular notice, as it may hereafter assist in establishing correct views of its nature, causes, and mode of treatment. It is, that in its distribution, the cellular and adipose tissues are preferred to others, for on dissecting, the melanose matter was most abundantly situated in the cellular tissue of the chest and abdomen, on each side of the spine, in the adipose substance enveloping the kidneys, &c. The fine cellular tissue interposed between the serous membranes and contiguous organs, were also observed to be the most frequent seat of melanose deposition, as in the immediate investing membranes of the heart, stomach, and bowels.

It may also be recollected that the parenchymatous viscera as the liver, kidneys, spleen, &c. were loaded with melanotic tubercles.

It would appear also that certain structures, as bone, muscular fibre, nerves, arteries, serous, mucous, and cutaneous tissues, and perhaps the brain, enjoy almost an entire immunity from its invasions.

However, it must be conceded, that in its advanced stages every tissue of the body may be indiscriminately involved in its ravages. Our author states, that by the kindness of Mr. Langstaff he was permitted to examine a preparation. in which the entire contents of the orbit had been converted into a melanose mass, leaving no trace of original structure behind.

Mr. Fawdington observes, that melanosis is often associated with fungus hæmatodes, medullary sarcoma, and according to the observations of Bayle, with the simple scrofulous tuburcle. Yet we are unwilling to admit that it possesses any striking analogy with these diseases. The morbid appearance of mela

nosis may be readily distinguished from the natural *black pulmonary matter*, which is uniformly distributed through the pulmonary tissue, without being encysted, or having its permeability impaired, and is different in colour and chemical composition.

This morbid alteration is not confirmed to the human subject, as it has been observed in the dog, hog, cat, rabbit, rat, and mouse, and more particularly in the horse with gray hair.

We coincide with Mr. F. that it is highly probable the contents of the melanose tubercle, is the product of secretion; but in what form, or by what means, this process is effected, is at this period impossible to determise.

In concluding our remarks on Mr. Fawdington's case, we would take occasion to congratulate him on the manner in which the plates accompanying the work, are engraved. We consider them as perfect specimens of the lithographic art, faithful in delineation, and no less beautiful in execution.

SELECTED INTELLIGENCE AND NOTICES.

1. *Ligature of the Arteria Iliaca Communis at its Origin.*—Professor Mott, of New York, has recently performed this operation for the cure of an aneurism, which occupied the whole extent of the vessel from within the ligament of Poupart to some distance above the origin of the internal iliac artery. The tumor was of large size, protruding the belly considerably at the iliac region; the patient suffered most excruciating pain, which appeared to increase as the tumour enlarged. Dr. Mott's incision extended from the external abdominal ring, to one or two inches above the crest of the ilium, dividing the tendon of the external oblique, and cutting through part of the origins of the internal oblique and transversalis. He then cautiously raised the peritoneum with his fingers, and succeeded in detaching it entirely from the tumor and vessels, without doing it the slightest injury.

"The artery was then examined, and the aneurismal dilatation was found to cease at about half the distance between the bifurcation of the aorta and the origin of the internal iliac branch. The ligature was passed from the outside of the vessel, by the aid of the excellent instrument devised by Drs. Parish and Hewson, carefully avoiding the iliac vein. The protrusion of the intestines rendered this part of the operation the most difficult. After the ligature was passed around the vessel, the wound was held open in such a manner as to allow the medical gentlemen present to see, and satisfy themselves of the exact situation of the ligature, which was just below the bifurcation of the aorta into the primitive iliacs, and on the side of the sacro-vertebral promontory. The ligature was then drawn tight and secured; the pulsation of the tumor ceased; its size was much diminished, and the patient was relieved from the agonizing pain, previously unremitting.

"The wound was lightly dressed, and patient put to bed; the limb of the side operated on was cold, as might be anticipated;

it was wrapped in cotton, and covered up to preserve the temperature until the circulation should be restored. To the great surprise and satisfaction of the surgeon, in a little more than half an hour after the operation, the circulation and temperature were entirely restored, and all fear respecting the supply of blood to the limb effectually dissipated.

"No untoward circumstance occurred after the performance of the operation. The patient complained of no inconvenience, except a peculiar sensation of fulness or tension in the limb, as if the small vessels had not yet become accustomed to their new office in sustaining the great mass of the circulation for the support of the member."—*Philad. Jour. of the Med. and Phy. Sci. for May.*

This is the second time the bold operation of tying the common iliac artery has been performed; and in both instances by American surgeons. It was first resorted to fifteen years ago, by Dr. GIBSON, professor of Surgery in the University of Pennsylvania.

During the riots in Baltimore, in the year 1812, a man received a wound from a musket ball. As the accident occurred near to where the professor was standing, he promptly examined the wound, which he found bleeding with great profuseness. He thrust his finger into the wound, and with it compressed the bleeding vessel, until the patient was carried home. From the direction of the wound he supposed the injured artery to be the common iliac near its bifurcation.

Though the patient was much exhausted by the hemorrhagy, yet he determined to make an effort to save him by securing the artery. The integuments of the abdomen above and below the wound were divided. "The peritoneum was next cut through, the intestines were turned to one side, until the artery was exposed, and slightly detached from the parts in its immediate vicinity." Ligatures were now applied around the left common iliac artery above and below its division. He next turned his attention to the intestines, which were opened in two convolutions. The apertures in the intestines were drawn together with a fine ligature, upon the plan suggested by Sir ASTLEY COOPER. The clotted blood was removed from the abdomen, and the external wound closed.

As might be expected, coldness of the left limb followed the injury and operation, but the following day the temperature increased, and continued to increase, until it rose to nearly the heat of the opposite leg.

On the fourth day, symptoms of peritoneal inflammation supervened.

On the ninth day, the patient was siezed with secondary hemorrhagy, which, at intervals, continued until the thirteenth day, when the patient expired.

On opening the abdomen after death, the folds of the intestines were united to each other in every direction by inflammation. "The upper ligature was found detached from the vessel, which projected and preserved the circle of its mouth entire." No union whatever had taken place between the sides of the artery. The impaired vitality of its coats, arising from contusion, was sufficient to prevent their union by adhesive inflammation.

The bullet was found imbedded in the upper part of the sacrum.

The result of this operation satisfactorily proved, as Dr. Gibson very properly stated, "that the largest artery in the body, except the aorta, may be tied without cutting off permanently the supply of blood to the lower extremity, inasmuch as the operation may possibly become necessary *in cases of aneurisms of the external or internal iliacs.*"

When the embarrassing circumstances are considered under which this operation was performed, we cannot but admire the boldness and success with which it was executed. See Dr. Gibson's paper in the 3rd vol. Philadelphia Med. Recorder.

North Am. Med. and Surg. Jour. for July, 1827.

2. Brodie *on Encysted Hydrocele. Lond. Med. and Phys. Jour. Dec.* 1826.—In some cases, in consequence of previous inflammation, the opposite surfaces of the tunica vaginalis, adhere throughout a portion of their extent, while a serous fluid is collected in that part which is not adherent, forming a partial hydrocele. Hydrocele also occurs with a contraction in the centre, at which part there is usually a channel of communication, through which the fluid may be made to pass from one portion of the tumour to the other; occasionally, however, the contraction is so complete

as to entirely separate the two portions of the tumour. Such tumours are liable to be confounded with encysted hydrocele, though essentially different; the latter being altogether independent of the tunica vaginalis, and bearing a much closer resemblance to a common encysted tumour than to a proper hydrocele. The appearances on dissection, of the three cases of encysted hydrocle, are given by Mr. Brodie. In the first, the cyst "lay in the cellular texture of the spermatic chord, between the spermatic artery and vein, and the vas deferens." In the second, the cyst was attached to the epididymis; "the tumour was covered by the tunica vaginalis, lying between it and the epididymis, and connected to them only by a very fine cellular texture." In the third, the cyst was attached to the anterior part of the testicle, below the epididymis. "The inner layer of the tunica vaginalis was reflected over one side of the cyst, while the cyst on the other side rested on the fibrous membrane of the tunica albuginea, by which it was in consequence separated from the glandular structure of the testicle.

"The encysted hydrocele of the spermatic chord, being very loosely connected to the surrounding parts, forms a very moveable tumour, which may be made to ascend into the groin, or to descend into the scrotum, accordingly as pressure is applied to it from above or below. When of a small size, it may be made to enter the abdominal ring, and hence is liable to be mistaken by a superficial observer for an inguinal hernia. It is, for the most part, unattended by pain, and not productive of actual inconvenience to the patient, except such as arises from its bulk. On the other hand, the encysted hydrocele of the testicle or epididymis, being bound down by the internal layer of the tunica vaginalis, is necessarily fixed in its situation, giving the testicle the appearance of being double or lobulated. In some cases the patient is very little molested by it; but in other cases I have observed that he experiences a good deal of pain, in addition to the inconvenience which is caused by the bulk of the tumour. In young persons, the encysted hydrocele, even when of a considerable size, admits of being cured by the application of stimulating lotions to the skin. In the adult, however, I have never known this method of treatment to succeed; but a cure may be effected by passing a seton through the cyst, or by making an opening into it, and dressing its cavity with lint."

Several cases are detailed, illustrative of these observations.

The encysted hydrocele is not a disease from which any ill consequences are to be apprehended; Mr. B. is of opinion, that, therefore, "there is no reason for the patient being subjected to the inconvenience of an operation for its relief, until it begins in some way or other to be a source of actual inconvenience; and, on the other hand, whenever this period arrives, there is no reason why an operation should not at once be resorted to." In one case, however, which came under the observation of Mr. B. the exposure of the cavity of an encysted hydrocele of the testicle, was followed by a severe inflammation of the testicle itself, owing, Mr. B. thinks, not so much to the operation, as to the peculiar condition of the general system at the time of its being performed.—*Phil. Jour. of Med. & Phys. Sci. No.* 27.

3. Earle *on diffused Cellular Inflammation. Lond. Med. and Phys. Journ. Jan.* 1827.—Mr. Earle, under the title of diffused cellular inflammation, considers those cases which have been classed under the general names of phlegmonous and trumatic erysipelas. He objects to the term phlegmonous erysipelas, because it is likely to be confused with common acute erysipelas, and because erysipelas is essentially an affection of the skin. The disease under consideration exerts its influence principally on the subcutaneous tissue and fascia. It is true that this is accompanied with an erysipelatous redness of the skin, but this is rather to be considered as an effect of the changes which are taking place in the subcutaneous cellular tissue, than as the original primary affection.

"The seat of this disease," says Mr. E. "is in the subcutaneous cellular tissue: it consists in a rapidly diffused acute inflammation in this tissue, to which no bounds are set, and which, if not arrested quickly, terminates in most extensive suppuration and sloughing of the cellular substance and fascia, which relieves itself, if the patient survives, by large and uncontrollable sloughing of the integuments. I have known, in the short space of thirty-six hours, the whole integument of an upper or a lower extremity involved in one extensive sloughing abscess."

"This affection most frequently takes place in the extremities: in Mr. C. Hutchison's cases, it almost constantly occurred in the lower extremities, and was often produced by the irritation

caused by the friction of coarse trowsers, wetted with sea water, on old indolent ulcers. I have more frequently met with it in the upper extremity. It has generally followed punctured wounds or severe bruises upon the elbow, and lacerations of the integuments of the hands or fingers. In several instances I have known it occur after punctured wounds of joints, or in the neighbourhood of joints, which have been attempted to be closed. In the majority of cases, it is accompanied in the early stages with well-defined inflammation of the absorbents; but these soon become so involved in the general tumefaction of the limb, that they cannot be traced. This swelling takes place with great rapidity and to great extent, accompanied with a dusky red appearance of the surface. In the earlier stages, there is a peculiar elastic feel in the integuments, which afford much greater resistance than in common œdema. If the integuments be divided at this period of the affection, the fat and cellular substance cuts with great crispness, and the wound gapes much. After a time, the sensation imparted to the touch is somewhat analogous to the crepitation of emphysema: it has a peculiar boggy feel; and now we find, on cutting down, that the work of destruction has taken place.

"The constitution participates much with the local affection.—The secretions are either all suspended or deranged. The circulation is much hurried; the pulse hard, contracted, and frequent, and after a time irregular. The nervous system is greatly disturbed; the countenance becomes most anxious, and features contracted. There is great and constant vigilance; or, if the patient drops asleep, he awakes in alarm, or in a state of delirium. When the cellular membrane has extensively sloughed, the greatest prostration of strength accompanies it, and a state resembling the worst form of irritative sympathetic fever often closes the scene.

"The treatment best suited to this formidable affection, (which, if adopted in time, seldom fails to arrest its progress,) is the one which has been recommended by Mr. Copland Hutchison, in a paper published in the Medico-Chirurgical Transactions; to the real merits of which I can bear most ample and satisfactory testimony. This treatment consists in making very free longitudinal incisions, if possible before suppuration has taken place,

through the swollen inflamed integuments down to the fascia or muscles. The vessels of the skin should be allowed to bleed freely, and even encouraged by warm fomentations, the limb should then be enveloped in a warm bread-and-water poultice. A large dose of colomel, antimony, and opium, should be administered; and after some hours the patient should be freely purged with senna and salts, or some other active aperient. If the incisions be made sufficiently large and deep, the relief is very speedy, and it is seldom requisite to repeat them. In a few hours I have witnessed the subsidence of tension and pain, the nervous system tranquillized, and the secretions restored."

The incisions should be made from three to six inches in length, in the long axis of the limb, which will best remove the distressing tension. Mr. E. says, that these free incisions may be made with perfect impunity; he has never, in any one instance, known the cut edges to ulcerate, or slough, except where the subjacent cellular membrane had extensively perished, and the integuments were in a state approaching to gangrene at the time of making the incision.—*Ibid.*

4. *On the Communication of the Absorbing with the Sanguiferous Vessels.*—Experiment 1. In a young man who died with phthisis, Dr. Rossi injected with mercury the lymphatic vessels passing out from the intestinal glands on the left side, after having tied the thoracic duct about four inches above the diaphragm: when the thoracic duct below the ligature was full, he suspended the operation. No lymphatic vessel was injected in the mesentery; nor was any one found emptying itself from the principal ramifications of the vena portæ. "The vasa efferentia of the ingunial glands in which the tube had been placed, after having passed the external and primitive iliac glands, went, as is usual, to the inferior lumbar glands, forming a plexus, and lastly to the superior lumbar glands: from these two, the lymphatics went out, and, reuniting in a few trunks, gave origin to the receptacle of Pecquet. From the same glands I also saw three vessels take their origin, not very well filled with mercury, and not very small; which vessels, instead of going to the thoracic duct, emptied themselves evidently, one into the vena cava, just as it emerges from the posterior curvature of the liver, one at the beginning of the left emulgent vein, and the third

again in the vena cava, near the termination of the right spermatic vein." Dr. R. next secured the places where these vessels terminated, with ligatures; upon reapplying the injecting tube, they became filled with mercury.

These vessels had no valves, which are always found in lymphatic vessels, and never in the blood vessels of the great cavaties—hence these were veins.

Upon separating the lumbar and iliac glands from the body, he found numerous small vessels, given off from their lateral and posterior surfaces, which contained some mercury; some leading directly into the vena cava, some into the primitive iliacs, and others into the last lumbar vein but one on the left side, which traverses the lumbar column passing under the aorta: they were a few lines in length, and had the aspect of veins.

Experiment 2.—Many small vessels terminated in the ramifications of the vena portæ, especially in the splenic vein.

Experiment 3.—Injection of the iliac lymphatics, as well as those of the mesentery. Many branches were found emptying into the vena cava, as well as in the ramifications of the vena portæ.

Experiments 4th and 5th.—These were performed on two extenuated bodies. In one the injection was begun above the right knee. The inguinal glands were injected, and the minute veins going from them into the femoral vein, contained globules of mercury, together with blood. He proved that these were veins, and not lymphatics, as they had no valves.

Experiments 6th, 7th and 8th.—The iliac and mesenteric lymphatics of three bodies injected, and the same branches going into the veins as before, afforded similar results to those above detailed.

"From these experiments, it appears to me, 1st, That mercury injected into the lymphatic vessels, after having traversed the glands, passes into the veins by means of certain vascular branches, which afford a communication between the large veins and the glands themselves.

2d. "That these branches, though having at first sight, the appearance of lymphatics, ought to be considered as veins, whose principal office is to carry back the blood which is superfluous for the nutrition of these glands. Mascagni and others have

before shown, that in 'many injections of the lymphatic system, the minute veins of the glands are filled.' Mr. Rossi thinks it is clear, then, that the communication between lymphatics and veins does not take place by branches, and infers, that it is probably effected in the ultimate subdivision of these vessels in the parenchyma of the glands. He does not 'positively *conclude*, that no lymphatic trunk communicates directly between the two systems;' but the branches seen by him must be regarded as veins, and not as they at first sight would appear to be, lymphatic vessels."—*Annali Universali apud London Med. and Phys. Journal, Jan.* 1827. *N. A. Med. & Surg. Jour. No.* 6.

ORIGINAL INTELLIGENCE AND NOTICES.

1. IODINE IN A DISEASE OF THE HEART. A young lady had for some time laboured under a thoracic affection, the prominent symptoms of which were sense of weight and anxiety in the chest, slight cough, wandering pain in the side, recurring especially about the left breast; pulse generally feeble and not frequent; palpitation and dyspnœa upon taking exercise; the face sometimes flushed; at others, pallid and shrunken. Some modification of these symptoms was in a slight degree generally present; but at times they were much aggravated. Several methods of treatment had been adopted without any decided effect, when Dr. Wright prescribed for her the tincture of Iodine. Its beneficial effects were soon apparent, in a great mitigation of all the symptoms; and by persevering for a few weeks she was so far restored, as to consider a further use of the medicine unnecessary.

2. LECTURES ON THE MATERIA ALIMENTARIA. Dr. Barnes is engaged in delivering, in the Western Museum, a course of Lectures on Aliments; designed for the instruction of the people at large, as well as students of Medicine.

3. PHRENOLOGY. Professor Caldwell of Transylvania University, so justly distinguished for his able and persevering efforts, to introduce and naturalize the Phrenology of Gall and Spurzhiem, among the people of the United States, has issued proposals for publishing, by subscription, a work entitled "ELEMENTS OF PHRENOLOGY. Second edition, greatly enlarged; with a preliminary discourse, in vindication of the science against an attack on it by Francis Jeffrey, Esq. and a concluding essay in proof of its usefulness, as the true philosophy of the human intellect, and applicable to the most important purposes of life."

It will be comprized in one 8vo. volume of 300 pages, with a Phrenological Map. The price to subscribers will be two dollars.

Of the peculiar fitness of the learned Professor, to expound the system of the German philosophers, we do not entertain a doubt.

4. ICHTHYOLOGY OF NORTH AMERICA. An unforeseen and interesting effect has resulted from the visionary schemes of Robert Owen, in the transfer to the banks of the Wabash, of several distinguished naturalists, among whom we may mention M'Clure, Troost, Say, and Lesueur. The last, an eminent French *scavan*, has recently issued proposals for publishing at New Harmony, in the state of Indiana, a systematic and scientific account of the Fishes of North America. The plates to be coloured and engraved by the Messrs. Tiebouts, from original drawings by the author himself. We have now before us a specimen of the work, and can bear favourable testimony to its execution. The character of M. Lesueur as an ichthyologist is, however, a safer guarantee for its fidelity and general excellence, than any encomium of ours. To those who are ichthyologists as well as ichthyophagists, from taste, and to all who perceive the utility of this branch of Natural History, the difficult undertaking of M. Lesueur, will appear worthy of encouragement; while every liberal minded and patriotic citizen of the Interior must feel disposed to facilitate a publication, which, from its magnitude and character, will confer distinction on the West.

5. DEATH OF PRESIDENT HOLLEY. By the public gazettes, we learn that this gentleman, so distinguished for his eloquence, and so extensively known in the West for the last eight or nine years, died in the month of July, on his passage, by sea, from New Orleans to New York.

6. HEALTH OF CINCINNATI. We have been much surprised to learn that reports of uncommon sickness and mortality in this city, are in circulation at a distance. We are enabled to state, from an inspection of the bills of mortality, as well as from personal observation, that they are wholly unfounded. The people of the city enjoy as good health as those of the surrounding country; and there is no epidemic, uncommon in its character or mortality, prevalent among either. We take this opportunity to express the opinion, founded on observations and inquiries continued for more than a quarter of a century, that there is not in all the western states, a single town situate on a navigable stream, that has been so seldom visited by fatal epidemics as Cincinnati.

7. TO SUBSCRIBERS. That we might issue this number at its proper time—the end of the month—we have made it one *form* less than the *minimum* stated in our prospectus. The deficiency shall be supplied in a subsequent number.

D.

MEDICAL LECTURES IN THE WEST.

MEDICAL COLLEGE OF OHIO.

The Lectures in this institution will commence on the first Monday of next November; and will continue, without intermission, till the end of the ensuing February, on the following subjects, viz:

Anatomy and Physiology, by JEDEDIAH COBB, M. D.
Obstetricks and Materia Medica, by J. WHITMAN, M. D.
Surgery, by JESSE SMITH, M. D.
Chemistry and Pharmacy, by Rev. E. SLACK, A. M.
Theory and Practice of Medicine, by J. MOOREHEAD, M. D.

Professors Cobb and Whitman will lecture daily;—price of each of their tickets, twelve dollars. Each of the other professors will lecture at least five times a week;—price of each of their tickets, ten dollars.

The fee for matriculation, including the use of the Library, and admittance to the Hospital, is three dollars. In the Hospital (the Commercial Hospital and Lunatic Asylum of Ohio) a regular course of Clinical Instruction is delivered on the most important of the cases presented.

The cost of graduation is eighteen dollars; being three to each professor, and three dollars for the diploma. The commencement for conferring degrees is held immediately after the close of the examinations at the end of the session.

Every student who has paid for two courses of lectures, and every graduate of the institution, has a right of free admission to the lectures.

The commodious and handsome college edifice, calculated to afford ample accommodations to a class of at least two hundred and fifty students, which was erected last year, and in which lectures were delivered during part of last winter, will be completed against the commencement of the approaching session.

During the last session, comfortable boarding, in respectable families, was had by the students at from $1 75 to $2 25 per week.

Each of the Medical Districts of Ohio is entitled to select and send for gratuitous admission to all the lectures, one *indigent* pupil. The proper officers of each district are respectfully requested to avail themselves of this provision of the law; and to send the pupil, furnished with a suitable certificate of his selection.

From its connection with the Commercial Hospital and Lunatic Asylum of Ohio, this institution furnishes, beyond question, such opportunities of acquiring Anatomical knowledge, as cannot be surpassed elsewhere in the Western country.

By order of the Faculty,

JOHN MOOREHEAD, *Dean.*

Medical College of Ohio, Cincinnati,
July 30th, 1827.

TRANSYLVANIA UNIVERSITY.

MEDICAL DEPARTMENT.

The Lectures in this institution will commence, as usual, on the first Monday of November, and terminate on the first Saturday in March.

Anatomy and Surgery, by B. W. DUDLEY, M. D.

Institutes of Medicine and Clinical Practice, by CH. CALDWELL, M. D.

Theory and Practice of Medicine, by JOHN E. COOKE, M. D.

Obstetricks and Diseases of Women and Children, by W. H. RICHARDSON, M. D.

Materia Medica and Medical Botany, by CHAS. W. SHORT, M. D.

Chemistry and Pharmacy, by JAS. BLYTHE, D. D.

The edifice which has been erected during the present season, for the accommodation of the Medical Department, is rapidly progressing, and the Faculty with confidence announce to the public, that it will be completed and ready for the reception of the classes before the commencement of the ensuing session. The building occupies a space, on its foundation, of seventy-five by fifty feet, and contains two spacious lecture rooms, large apartments for the library, museum and chemical laboratory, together with librarian's dormitory, and every other convenient and necessary appurtenance.

It is situated in a pleasant and central part of the town, immediately contiguous to the anatomical theatre and dissecting rooms; and, together with these, will constitute an establishment not surpassed, in point of comfort and convenience, by any similar institution in America.

The Library contains upwards of three thousand volumes, and is constantly increasing by the addition of all the periodical and standard works on medicine and the collateral sciences. It is opened as a reading room every evening (Sunday excepted) throughout the session, and every student has the privilege, moreover, of keeping out two volumes at a time.

The Museum contains a variety of instructive preparations, both of the human subject and of wax and plaister imitations, by the first artists of Europe.

Students of medicine resorting to this school for instruction, will be accommodated, in the most respectable families, with genteel board and lodging, together with all other incidental attendance, upon cheaper terms than at any other medical institution in our country.

The expenses of a complete course of lectures, including the matriculation and library ticket, will amount to one hundred dollars, specie:—The fee for graduation will be twenty dollars in addition.

By order of the Medical Faculty,

C. W. SHORT, M. D., *Dean.*

Lexington, Ky., August 1st, 1827.